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Turbulent transport and related parameters were investigated in the SOL of ASDEX Upgrade (AUG) in L-mode and H-mode discharges. The probe head [1] carries six probe pins of 1 mm diameter and 2 mm length. One pin is radially protruding by 3 mm. With this array the poloidal and radial electric field components $E_{\theta,r}$, respectively, and the ion density n could be determined simultaneously. From these data in particular the radial flux of poloidal momentum, $M_r = nv_r v_\theta = nE_\theta E_r / B_\phi^2$, was derived ($B_\phi$ is the toroidal magnetic field). The density n and the radial and poloidal velocity components, $v_{r,\theta}$, respectively, are defined as $X = X_0 + X_{\mathrm{fl}}$ (i.e. the stationary and the fluctuating components). Thereby the radial flux of poloidal momentum splits into various contributions [2,3] of which three are of interest to us: (i) Reynolds stress $\mathcal{Re} = n_0 v_{r,\mathrm{fl}} v_{\theta,\mathrm{fl}}$, (ii) convective momentum flux term $v_{\theta,0}\Gamma = v_{\theta,0} n_{\mathrm{fl}} v_{r,\mathrm{fl}}$ and (iii) triple fluctuating term $n_{\mathrm{fl}} v_{r,\mathrm{fl}} v_{\theta,\mathrm{fl}}$. Here we discuss the probability density functions (PDF) of these quantities, normalized to their standard deviations, for L-mode shot #23157 during its diverted phase and H-mode shot #23163. In case of H-mode discharges, M_r is calculated separately for ELM-intervals and inter-ELM intervals, i.e., in between type-I ELMs. Whereas in H-mode due to neutral beam injection (NBI) there is an external source for toroidal angular momentum, in the L-mode discharge there is only intrinsic rotation. In both cases we see radial flux of poloidal momentum but with opposite signs.

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